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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,793	10/28/2003	Mao-Yi Chang	9004-US-PA	2792
31561	7590	09/22/2004	EXAMINER	
JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE 7 FLOOR-1, NO. 100 ROOSEVELT ROAD, SECTION 2 TAIPEI, 100 TAIWAN			HARRISON, MONICA D	
			ART UNIT	PAPER NUMBER
			2829	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/605,793	Applicant(s) CHANG, MAO-YI	
	Examiner Monica D. Harrison	Art Unit 2829	<i>pm</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>08/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki et al (US 2002/0034863 A1).

2. Regarding claim 1, Yamazaki et al discloses a method of forming a polysilicon film of a thin film transistor, comprising: providing a substrate (Figure 1, reference 101), forming an amorphous silicon layer over the substrate (Figure 1, reference 104), forming a first optical layer on the amorphous silicon layer (Figure 1, reference 102), wherein the first optical layer is comprised of a first region having a first thickness and a second region having a second thickness, and a reflectivity of the first region is higher than a reflectivity of the second region (Figure 16F, reference 2503), performing a laser annealing to transform at least a portion of the amorphous silicon layer into a molten silicon layer (pg.5, paragraph 0106); and crystallizing the molten silicon layer to form a polysilicon film (Figure 13, reference 1315).

3. Regarding claim 2, Yamazaki et al discloses wherein the step of forming the optical layer comprising the first region and the second region further comprises: forming an optical material layer (Figure 1, reference 102) on the amorphous silicon layer, wherein the optical material layer has a first thickness, forming a patterned mask layer on the optical material layer (pg.3, paragraph 0071); and etching a portion of the first optical material layer using the patterned mask layer as a mask until the etched portion of the first optical material layer reaches a second thickness(pg.11, paragraph 0221).

4. Regarding claim 3, Yamazaki et al discloses wherein the step of etching the optical material layer comprises an anisotropic etching process (pg.11, paragraph 0221).

5. Regarding claim 4, Yamazaki et al discloses wherein the step of crystallization of the molten silicon layer is performed by reducing temperature thereof (pg.5, paragraph 0106).

6. Regarding claim 5, Yamazaki et al discloses wherein the material of the first optical layer is selected from a group consisting of silicon nitride and silicon oxide (pg.7, paragraph 0144).

7. Regarding claim 6, Yamazaki et al discloses further comprising forming an isolation layer between the substrate and the amorphous silicon layer (Figure 1, reference 102).

8. Regarding claim 7, Yamazaki et al discloses wherein the reflectivity of the first optical layer having the first thickness exhibit a maximum reflectivity to the laser (Figure 16F, reference 2503).

9. Regarding claim 8, Yamazaki et al discloses wherein reflectivity of the first optical layer having thickness exhibit a minimum reflectivity to the second the laser (Figure 16F, reference 2503).

10. Regarding claim 9, Yamazaki et al discloses a method of forming polysilicon film, the method comprising: providing a substrate (Figure 1A, reference 101), forming an amorphous silicon layer over the substrate (Figure 1A, reference 104), forming a first optical layer having a first thickness and a second optical layer having a second thickness on the amorphous silicon layer (Figure 1A, references 102 and 105), wherein a reflectivity of the first optical layer having the first thickness is higher than a reflectivity of the second optical layer having the second thickness, performing a laser annealing to transform at least a portion of the amorphous silicon layer into a molten silicon layer (pg.5, paragraph 0106); and crystallizing the molten silicon layer (pg.5, paragraph 0106).

11. Regarding claim 10, Yamazaki et al discloses wherein the step of crystallizing the molten silicon layer is performed by reducing temperature thereof (pg.5, paragraph 0106).

12. Regarding claim 11, Yamazaki et al discloses wherein the materials of the first optical layer and the second optical layer are selected from a group consisting of silicon nitride and silicon oxide (pg.7, paragraph 0144).

13. Regarding claim 12, Yamazaki et al discloses further comprising forming an isolation layer between the substrate and the amorphous silicon layer (Figure 11A, references 72 and 73).

14. Regarding claim 13, Yamazaki et al discloses wherein the first optical layer exhibits a maximum reflectivity to the laser (Figure 16F, reference 2503).

15. Regarding claim 14, Yamazaki et al discloses wherein the second optical layer exhibits a minimum reflectivity to the laser (Figure 16F, reference 2503).

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica D. Harrison whose telephone number is 571-272-1959.


The examiner can normally be reached on M-F 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Tokar can be reached on 571-272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Monica D. Harrison
AU 2829

mdh
September 16, 2004


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